

Judicial and Administrative Processes

The Effectiveness of Legal Sanctions in Dealing with Drinking Drivers

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Introduction

Legal sanctions, whether administered by the courts or by State licensing agencies, are central to deterrence-based policies for reducing alcohol-impaired driving. They are the punishments threatened in support of the law's mandate. Examples are fines, license actions such as suspension and revocation, jail sentences, and alternatives such as community service. Deterrence theory posits that sanctions will be effective in modifying behavior to the extent that they are perceived as being *certain, swiftly applied, and severe*. These three primary characteristics of penalties, if appropriately perceived, have the potential to reduce drunk driving.

In determining public policy, we would like to know if the different kinds of sanctions, when applied with equal severity, certainty, and swiftness, produce different results. In addition, we would like to know if differences in the swiftness, certainty, or severity of a particular type of sanction produce different results. Our review finds that license actions appear to be more effective than others, and the certainty and swiftness of punishment appear to increase impact to a greater extent than severity.

The Objectives of Sanctions

Criminal sanctions may have several objectives, including general deterrence, specific deterrence, rehabilitation, incapacitation, and retribution. Restitution and program financing may also be objectives of sanctions. By *general deterrence*, we refer to the effect of punishing law violators on the drinking and driving behavior of those not sanctioned, but who are presumably aware of the punishability of the behavior in question. By *specific deterrence*, we refer to the deterrent effect of sanctioning on the specific offenders being punished. Their experience and the fear of future punishment is expected to reduce their drinking and driving behavior. *Rehabilitation* refers to changing the violator's motivation through the experience of the sanction, not through fear of being sanctioned in the future. The rehabilitated driving while intoxicated (DWI) offender no longer wants to drive drunk, whereas the deterred person refrains from such behavior out of fear of consequences. *Incapacitation* refers to denying the offender the opportunity to repeat the DWI offense. Imprisonment accomplishes this during the period of confinement; license withdrawal attempts to do this without confinement.

Specific deterrence, incapacitation, and rehabilitation effects are frequently interwoven and difficult to separate. Their combined impact, which we refer to as *individual reform*, is reflected in *changes in recidivism* of the offenders sanctioned. Recidivism is usually measured in terms of subsequent DWI offenses or crash involvement.

This review concentrates on determining both the general deterrent and individual reform (i.e. change in recidivism) impacts that occur as a result of the imposition of various sanctions.

General Deterrence Versus Individual Reform

The impact of any sanctioning policy on the general driving public is much more important than its impact on the offenders who are punished. Programs that result in reduced recidivism by those who are punished are worthwhile to the extent that they reduce impaired driving by these drivers and perhaps improve their general well-being. However, without having some impact on the total population of drinking drivers – particularly those who are not caught – such programs cannot have a major impact on drunk driving and its consequences.

In any one year, it is estimated that fewer than 5 percent of alcohol-related fatal crashes involve a driver who was apprehended for DWI the previous year. Thus, even if the sanctions applied to offenders over a 1-year period were 100-percent effective in eliminating recidivism among those drivers, the next year's fatal, alcohol-related crashes would be reduced by less than 5 percent (Nichols and Gundersheimer 1974; Sterling-Smith 1976). Further, a Minnesota study suggests that if the elimination of recidivism by known offenders were continued for 8 years, three-fourths of alcohol-related fatal crashes – those involving drinking drivers not previously known to authorities – would continue to occur (Lewis 1985). Thus, sanction policies that have a general deterrent impact are essential for reducing such crashes. The major hope for reducing alcohol-related fatal crashes lies in policies that affect the total driving population.

Categories of Sanctions

We examine three primary categories of sanctions: confinement in jails, prisons, or special facilities; license revocation or suspension; and fines. In addition, some evidence is reviewed regarding the effectiveness of community service.

In the United States, *confinement* for drunk drivers is traditionally in jails. However, use of alternative confinement sites, including the offender's home, is increasing. This is due in large part to the inability of jails to handle large numbers of drinking drivers.

License actions include both suspension and revocation of the driving permit. Suspensions and revocations can be "hard," prohibiting all driving, or "soft," permitting driving for limited purposes such as commuting to work. They range in duration from brief periods (e.g., 30 days) to long periods (e.g., 1 to 5 years) to permanent actions. Suspended licenses are automatically reinstated at the termination of the suspension, whereas revoked licenses must be replaced through renewed applications, after the revocation period has expired.

We group *fines* with other officially determined financial penalties such as court costs, but exclude fees charged for services, such as mandated education, or incidental costs, such as increased insurance premiums. We do this even though such costs may dwarf traditional fines. The effects of costs beyond legal penalties are worthy of study and possible embodiment in the social response to drunk driving, but we do not think of them as criminal penalties.

Criminal Versus Administrative Sanctions

The judicial or administrative process by which sanctions are imposed is also important from a deterrence perspective because it has important implications for all three characteristics—swiftness, certainty, and severity—of penalties imposed. Traditionally, sanctions have been exclusively applied in courts, using *criminal* procedures. Here, the application of penalties depends on conviction for an offense following formal charging and pleading and is contingent upon a finding of proof beyond a reasonable doubt that a crime (drunk driving) was committed. This traditional process is often lengthy and, because of the stringent standards of proof involved, likely to err in the direction of leniency. In contrast, the *administrative* process requires only that the balance of evidence favor the conclusion that a sanction is merited. It is unconcerned with determining criminal guilt. The administrative process can thus be relatively swift and certain in applying sanctions.

In practice, the distinctions between these two processes have often been eroded. Criminal guilt is most frequently based on a routine plea, rather than on a trial with its safeguards, delays, and uncertainty. On the other hand, the administrative process can be slowed and rendered less efficient as those subjected to it demand hearings that may, in some respects, resemble trials. However, the administrative process generally remains a swifter and more certain process for applying sanctions, particularly license actions.

The administrative process is employed in the many States that have adopted “administrative per se” laws. In these States, administrative license actions are applied to drivers refusing or failing alcohol breath tests. Refusing or failing the test, not the crime of drunk driving, is sanctioned in this manner, and offenders may still be subject to a separate criminal process leading to additional penalties. In those States without administrative license laws, license suspension and revocation are usually invoked by judges in their sentences. Even in States where administrative penalties are used, additional suspensions or revocations can be invoked by judges following criminal convictions.

Thus, license actions can be applied both administratively and criminally. The administrative process fits license sanctions especially well, because licenses are administratively granted in the first place. Although fines are administratively applied in some areas of the law, this has not yet occurred with regard to drunk driving. The more drastic nature of confinement and community service appears to limit their application to the criminal process.

The recent increase in the acceptability and use of administrative license actions has provided a kind of punishment that fits the demands of swiftness and certainty required for both specific and general deterrence. The significant increase in the certainty and swiftness of punishment resulting from the use of administrative process has opened a new opportunity for controlling alcohol-impaired driving and its consequences.

Evaluation of Sanctions

The bulk of this chapter is concerned with evaluations of various types and amounts of sanctions. These evaluations generally compare different types or severities of sanctions. They do not compare sanction alternatives or variations with no sanctions at all. Thus, evaluations of sanctions for drunk drivers concern the effects of marginal changes in punishment, rather than absolute deterrence. If an increase in the standard fine from \$100 to \$500 has little effect, this does not imply that a reduction to zero would yield similar results, or that fines are worthless in controlling drunk driving. Practically speaking, these evaluations of marginal changes are sufficient, as there are no serious political proposals for abandoning sanctions.

It is desirable to determine the relative effectiveness of the various categories of penalties. In addition, within each of the primary sanction categories, it is desirable to distinguish between penalties of greater or lesser severity, certainty, or swiftness of application. However, comparisons between categories present both theoretical and empirical problems. For example, a judgment of comparative severity between a \$1,000 fine and 24 hours in jail would be hard to make and defend. Even comparisons within sanction categories are difficult to make. While a fine of \$1,000 is clearly more severe than one of \$100, it is likely to be much more severe to a person of modest means than to a person of substantial wealth. As a result of these problems, it is often difficult to provide more than qualitative (i.e., positive or negative) evidence for the effectiveness of various sanctions.

Recent concern with the seriousness of the impaired driving problem in the United States has resulted in numerous sanction-based interventions that, when evaluated, could ideally enlighten our knowledge and improve practical policy. A major impediment to this ideal has been that the changes often take the form of complex packages of interventions. In these circumstances, it is generally impossible to determine which components may be accounting for positive outcomes. In this chapter, we do the best we can with available data, characterizing the sanction packages in terms of what we perceive to be their main thrusts.

Confinement: Jail and Prison Sentences and Their Alternatives

The use of jail or prison sentences as sanctions for drinking drivers has been an integral part of Scandinavian law for more than 50 years. In the United States, it has been used much less frequently, but interest in the use of such penalties has increased since 1980. Some theorists have assumed that the severe prison sanctions used in Scandinavia provide the ultimate weapon for deterring repeat offender, drinking drivers. In addition, some have suggested that such penalties may provide needed "shock value" for first-time offenders.

It has also been suggested that jail or prison sanctions result in a long-term learning process whereby the driving public comes to see drunk driving as a serious and undesirable behavior because of the penalties associated with it. The review that follows presents available research to establish the basis for claiming individual reform and general deterrent effects resulting from jail or prison sentences.

Individual Reform: Do Offenders Receiving Jail or Prison Sentences Have Lower Recidivism Than Those Who Do Not?

Reductions in recidivism are often referred to as specific deterrent effects. However, such reductions may also result from rehabilitation or incapacitation. Therefore, we refer to reduced recidivism as an indicator of *individual reform*. Regardless of the terminology used, the primary concern is whether the sanction in question reduces recidivism rates among offenders who receive it.

Voas (1986) reviewed several relevant foreign (Buikhuisen 1972; Dijksterhuis 1974; Homel 1979, 1981) as well as U.S. studies (Blumenthal and Ross 1973, 1985a, 1986; Tashima and Peck 1986). He found little evidence of any reduction in recidivism resulting from jail or prison sentences, particularly in the foreign research.

Three U.S. studies were reviewed that found only negative results. Blumenthal and Ross (1973) investigated the impact of jail sentences on first-offense drunk drivers in Colorado and found no less recidivism for those receiving jail sentences compared to other sentencing alternatives.

In Washington State, Salzberg and Paulsrude (1983a) and Klingberg, O'Connell, Salzberg, Chadwick, and Paulsrude (1984) evaluated the effects of a 1980 law that

mandated jail sentences for both first and repeat offenders convicted of DWI. They reported that people convicted under the new law had higher subsequent crash and DWI offense rates than people convicted under the previous law and that the mandatory jail sentence failed to deter subsequent drunk driving.

In California, Tashima and Peck (1986) studied first offenders receiving five different types of sanctions: license suspensions; jail and probation; jail, probation, and education; license restrictions only; and license restrictions and education. Offenders receiving jail and probation had among the worst subsequent conviction and crash records of the five groups. License suspensions and license suspensions with education were the most effective sanctions for first-time offenders.

In Ohio, Siegal (1985) evaluated three sentencing alternatives: traditional jail plus probation, a weekend residential intervention program, and a diverse group of "other" sanctions. The weekend residential intervention produced the lowest recidivism rates for multiple offenders, but not for first offenders. The recidivism rates for the jail plus probation group were not significantly lower than for the diverse other group. This study provided evidence that confinement in a special facility, combined with assessment and referral, can have a positive impact on multiple offenders.

Reduced recidivism rates following mandatory 48-hour jail sentences for first-time offenders were first reported by Compton (1986) and more recently by Jones, Joksch, Lacey, and Schmidt (1987). They evaluated the effects of a 1982 Tennessee law by comparing DWI reconviction rates for offenders convicted in the 3 years after the law was implemented with those convicted in the 3 years prior to the law. The initial report by Compton indicated a 40-percent reduction in 24-month rearrest rates following implementation of the law. The final report (Jones et al. 1987) concluded that the reduction in recidivism was 11 percent, rather than 40 percent, and that the effect was temporary, lasting for approximately 3 years. Unlike Siegal's (1985) work, this study found that the effect of confinement appeared to be greater for first offenders than for repeat offenders, and greater for older (over age 25) than for younger offenders.

In conclusion, our review of the effect of confinement on recidivism rates found five studies that reported no reductions in recidivism (Buikhuisen 1972; Homel 1979, 1981; Blumenthal and Ross 1973; Tashima and Peck 1986); one that reported no significant difference in effect between a special facility and traditional prison (Dijksterhuis 1974); one that found no effect for traditional confinement but did report reduced recidivism for multiple offenders confined to a special facility for assessment and referral (Siegal 1985); and one study that found reduced recidivism for first time offenders (Compton 1986; Jones et al. 1987).

General Deterrence: Does Confinement Deter Drivers Who Are Not Caught?

It is important to know whether jail penalties deter drinking drivers who have no previous arrest or conviction on their record, because they are involved in the majority of alcohol-related fatal crashes. General deterrent impact is usually measured by surveys that show changes in drinking and driving behavior or by data analyses that show changes in alcohol-related fatal crashes or nighttime fatal crashes.

The Scandinavian countries have used jail or prison sentences for more than 50 years. In Sweden, such penalties have generally not been applied to offenders at lower alcohol concentrations, and they have been applied with varying degrees of consistency to more extreme offenders (Voas 1982; Ross et al. 1984). Still, confinement has been used more commonly in Scandinavia than in the United States, and it has been a more visible part of their deterrent effort.

In a critical review entitled "The Scandinavian Myth: The Effectiveness of Drinking and Driving Legislation in Sweden and Norway," Ross (1975) challenged the assumption that Scandinavia's tough approach for dealing with drinking drivers was responsible for

a low rate of alcohol-related fatal crashes. Using time-series analyses, Ross found no changes in traffic deaths in either Sweden or Norway immediately after drunk driving penalties were increased in those two countries. Ross reiterated his findings and his conclusions in subsequent papers (e.g., Ross 1978, 1982) and recommended to the parliaments of both Norway and Sweden that a reduction in the severity of penalties would not provide a less effective deterrent. He also evaluated a 1950 Finnish law that increased prison penalties for drinking drivers involved in injury crashes (Ross 1982). Although he found a reduction in total and injury crashes following implementation of the law, Ross rejected the hypothesis that it was due to the law. This was because injury crashes showed a greater reduction than fatal crashes, which are more highly correlated with the use of alcohol.

Ross' reviews and evaluations resulted in considerable debate over the impact of laws modeled on those of Scandinavia, particularly on the use of jail penalties. As a result, much additional research was conducted and published regarding the impact of such laws on a variety of variables such as incidence of drinking and driving, rate of apprehension for drinking drivers, alcohol concentration levels of apprehended and fatally injured drivers, public knowledge and acceptance of the laws and penalties, and social costs of penalties as well as reductions in fatal and injury crashes (e.g., Andenaes 1978; Votey 1978; Klette 1978, 1983; Votey and Shapiro 1983, 1985; Snortum 1984; Snortum et al. 1986). In many cases, Scandinavian data were compared with similar U.S. data to assess the circumstantial evidence for concluding that such laws have a deterrent impact.

Reviews of such studies by Snortum (1984) and by Voas (1982) found convincing evidence that, compared with the United States and most other western nations, Scandinavian countries had a lower proportion of fatally injured drivers with high alcohol concentrations; an even lower incidence of drivers on the roadway who had high alcohol concentrations; and a higher proportion of drivers who were aware of and supported the laws and the associated penalties.

Applying econometric analyses to the Swedish and Norwegian data, Votey (1978) found that fatalities were negatively correlated with convictions for drunk driving and license withdrawals in Norway and with length of jail sentences in Sweden. Subsequent analyses by Votey and Shapiro (1983, 1985) supported the effectiveness of all three types of sanctions in use in Sweden (i.e., jail, license withdrawal, and fines). Because of the stronger negative correlation of fines and license actions with fatal crashes, they suggested that increased reliance be placed on fines and license actions in the future. These authors found, as did Ross in his 1982 evaluation of the impact of the Finnish law, that jail sentences were more negatively associated with serious injury crashes than with fatal crashes, an unexplained paradox.

Ross (1982, 1985) acknowledged the low rates of drunk driving in Scandinavia but rejected both the procedures of Votey and Shapiro and the conclusion that imprisonment is necessary for deterrence. In his book, Ross (1982) stated that a variety of facts were consistent with the possibility that the Scandinavian countries had achieved some marginal deterrence over the long run. However, he maintained, the same deterrent effect could have been obtained with laws that were less punitive and costly.

In spite of their differences, Ross and Votey and Shapiro agreed on the wisdom of placing more reliance on licensing and fines. In addition, Klette (1985) concluded that while the Scandinavian laws had been effective, the use of jail sentences should be reduced.

As we suggested earlier, in addition to a simple deterrent effect, severe penalties may be long-term components of general prevention. While simple deterrence results from the public's fear of a sanction, the longer term, educational component involves the gradual development of a social norm that drunk driving is wrong, as demonstrated by the sanctions associated with it. In Scandinavia, jail sentences have been shown to have some long-term effect. But some evidence implies that emphasis on other penalties

would have had as great an effect. Further, a clear trend toward reduced emphasis on sanction severity is indicated by both fewer jail sentences and shorter jail terms. This is true, to some extent, for all of the Scandinavian nations. In Sweden, Denmark, and Finland, significantly more emphasis is being placed on the adoption of illegal per se laws, roadside breath testing, and roadside sobriety checkpoints (Voas 1982). In all three nations, continuing emphasis is being placed on license withdrawals (primarily administrative) and fines based on income levels.

In the United States, as of 1988, 14 States mandated jail sentences (or community service) for first offenders, and 42 States mandated such penalties for repeat offenders. Sentences for first offenders were often for minimal periods such as 2 days. Sentences for repeat offenders were usually longer but not as long as those traditionally used in Scandinavia. Because of factors such as suspended sentences, diversionary programs, and plea bargaining, many offenders sentenced to jail were never actually confined.

Early evaluations of the general deterrent value of jail sentences in Chicago (Robertson et al. 1973); in Yakima, Washington (Grube and Kearney 1980), and in Phoenix, Arizona (Voas 1975) involved laws or policies that were never fully implemented (Voas 1982). No general deterrent effects were reported in these studies, perhaps as a result of incomplete implementation. Voas (1975) and Ross (1976) pointed out that the effects of severe sanctions, such as jail, were often "neutralized" by factors such as reduced arrests, increased not-guilty pleas, increased requests for jury trials, decreased conviction rates, and increased court backlogs. These have been demonstrated to be very real handicaps to the use of severe sanctions. However, such factors may not be as overwhelming when officials or the public have a strong commitment to making such sanctions work.

Two recent studies were conducted in jurisdictions where jail sentences were regularly administered. In both cases, first offenders were the primary targets of the law. Falkowski (1984) reported on the efforts of judges in Hennepin County, Minnesota, who voluntarily implemented a policy of providing 2-day jail sentences for first-time DWI offenders. Initially, the sentences were imposed on 93 percent of convicted offenders. Even after 2 years, 80 percent of such offenders received jail sentences. Falkowski found a statistically significant (20 percent) reduction in nighttime fatal crashes after the policy had been in effect for 2 months. (It is not clear if such a lag was anticipated. If not, it raises some questions regarding the interpretation of the results of the time-series analysis.) Falkowski also reported a marked increase in enforcement coincident with the policy and suggested that the jail policy might not have been successful without the increase in arrests. However, her analyses suggested that the change in sentencing policy was the primary cause of the fatality reduction.

In neighboring Ramsey County, which did not implement the jail policy, there was a similar increase in arrests and a (smaller) decrease in nighttime fatalities. However, the decrease in fatalities in Ramsey County was not coincident with the implementation of the policy in Hennepin County.

Subsequent analyses by Cleary and Rodgers (1986) supported Falkowski's findings. Even though arrest rates and other program efforts increased significantly throughout the State, and even though these efforts were accompanied by statewide reductions in fatal crashes, the reductions observed in Hennepin County were greater (25 percent) than for the remainder of the State (16 percent). Although there is some question regarding how the time lag in observed results should be interpreted, the Hennepin County experience suggested that the 2-day jail sentence policy likely had an impact on fatal crashes.

The most recent study of the general deterrent effect of jail sentences involved the mandatory 2-day jail sentence legislation in Tennessee. This legislation was implemented in July of 1982 and evaluated by Jones et al. (1987). Nighttime, single vehicle, fatal crashes showed an upward trend until shortly after implementation of the law. This upward trend

was followed by a decline in such crashes, which continued for 24 months. This decline occurred at the same time as daytime crashes were increasing. Taken at face value, and considering Tennessee alone, the study suggested that "... a reduction in alcohol-related fatal crashes of up to 15 percent could be attributed to the mandatory jail law." As in Hennepin County, there was a time lag before the reversal in crash trends occurred. The evaluators also worried that their findings were tempered by the fact that similar reductions occurred in two adjoining States, Alabama and Kentucky, that did not implement mandatory jail sentences. However, they overlooked the fact that both Alabama and Kentucky implemented DWI legislation and other significant counter-measures immediately preceding the reductions in nighttime, single vehicle, fatal crashes in those States.

In a recent study by the Insurance Institute for Highway Safety (IIHS), Zador, Lund, Fields, and Weinberg (1988) evaluated the effectiveness of three different types of laws: illegal per se, administrative licensing, and mandatory jail or community service laws. They found that all three kinds of laws reduced fatalities and that administrative licensing laws had the greatest impact. Laws mandating jail or community service for first offenders resulted in an estimated 6-percent reduction in late-night fatal crashes, which are most commonly associated with alcohol. This study supported the idea of a general deterrent effect for brief mandatory jail sentences for first-time offenders. It covered a number of States across the Nation.

Can Problem Drinkers Be Deterred?

With regard to individual reform (i.e., reduced recidivism), we have already provided evidence that suggests that multiple offenders who receive jail sentences do not appear to be affected by them, but first offenders may be at least temporarily affected. An issue that has frequently been raised involves the extent to which heavy or "problem" drinkers who are not caught can be deterred by severe penalties. Generally, theorists have speculated that moderate or "social" drinkers are most affected by penalties of any kind and that problem drinkers are unable to modify their behavior. In support of this theory, Voas (1982) showed that six times as many drivers had low to moderate BAC levels on U.S. roadways as on Swedish roadways, but that only three times as many crash-involved drivers had these moderate levels. The implication was that Sweden, in comparison with the United States, had significantly reduced the number of social drinking drivers on the road but not the riskier problem-drinking drivers.

However, Snortum et al. (1986) reported survey results compatible with the idea that problem drivers had been deterred by jail sentences in Norway. The researchers found that, while Americans showed only slight inclinations not to drive home after drinking, Norwegians showed substantial inclinations not to drive. This was true for persons from high as well as low baseline levels of alcohol consumption.

Data from NHTSA's Fatal Accident Reporting System (FARS) have suggested that since "tougher" sanctions (including but not limited to jail) were implemented in the United States, drivers with high BACs have been less frequently involved in fatal crashes (Nichols 1988). Roadside surveys conducted in Minnesota (Palmer and Tix 1986; Tix and Palmer 1987) and across the Nation (IIHS 1987a, b) have supported this suggestion.

Thus, while conventional wisdom and some data suggest that, in Scandinavia, primarily social drinkers have been deterred by laws involving the use of prison sentences, evidence has also shown that drivers with high alcohol concentrations, presumably problem drinkers, have been deterred in both Scandinavia and the United States. Snortum et al. (1986) suggested that although many heavy drinkers in Norway may not have changed their drinking habits, they have found ways to avoid driving after drinking.

Summary of Confinement Effects

The National Institute of Justice (1984) reviewed jail sentencing practices in several

U.S. jurisdictions and concluded that implementation of mandatory jail sentences would be likely to produce the following results:

- Drunk driving arrests would increase.
- Court workloads would increase.
- More defendants would challenge, postpone, or avoid compliance with court procedures and decisions.
- Effects on subsequent recidivism rates would vary from one site to another.
- Incarceration rates would increase.
- Strains would be placed on the correctional system.
- A variety of special programs and facilities would be required.
- Traffic fatalities might decline.

This report also indicated that legislative enactment is not necessary and that adverse effects can be minimized or eliminated.

In our review, we found only slight evidence that jail sentences reduce recidivism among offenders who receive them. One study supported the proposition that the use of special facilities with referral to treatment may reduce recidivism for multiple offenders (Siegal 1985). One U.S. study showed that brief, mandatory jail sentences may temporarily reduce recidivism for first-time offenders (Jones et al. 1987).

With regard to the much more important general deterrent effects, some evidence has been provided for a long-term benefit associated with the use of jail sentences in Scandinavia (Voas 1982; Snortum 1984). However, such benefit might well have been as great with less severe sanctions (Ross 1982; Votey and Shapiro 1985). Scandinavian nations are modifying their approach to be less dependent on jail sentences and more dependent upon fines, license actions, and random roadside testing procedures. Jail sentences have not been eliminated, but they have been reduced in duration and their use has been directed more to persons with higher alcohol concentration levels (Voas 1982; Ross et al. 1984). Treatment is also being more frequently considered as an adjunct to jail sentences (Winsten 1987).

In the United States, jail sentences have frequently resulted in a high cost to the judicial and correctional systems. In some locations where jail sentences were used, they produced more innocent pleas and requests for jury trials, fewer convictions, and greater court backlogs (Voas 1975; Ross 1976). The experience in Hennepin County, Minnesota provided an example of the difference judicial commitment can make. The courts in Hennepin County did not become backlogged, jail facilities were not generally overburdened, jury trials did not increase, and fatal crashes did decrease following implementation of the sanction policy (Falkowski 1984).

Recently, the use of brief, 2-day jail sentences has increased in the United States. Four studies that we reviewed (Falkowski 1984; Cleary and Rodgers 1986; Jones et al. 1987; and Zador et al. 1988) found a general deterrent effect of these jail sentences for first offenders. Several studies have suggested that license withdrawal and substantial fines may be more effective than mandatory jail sentences (Klette 1985; Votey and Shapiro 1985; Zador et al. 1988). These findings do not necessarily mean that jail should be eliminated as a sanction. They do suggest that fines and license actions should receive greater emphasis.

Alternatives to Jail Sentences

In addition to traditional license withdrawals and fines, a number of sanctions are used specifically as alternatives to jail sentences. Most common among these alternatives have been community service, residential treatment, and house arrest. While residential

treatment has had an impact on recidivism (Siegal 1985), such programs have not been shown to have a general deterrent effect.

Similarly, there is little evidence that community service or house arrest, when applied to large numbers of offenders, has deterrent impact. The Presidential Commission on Drunk Driving recommended the use of 48-hour jail or 10-day community service sentences for second-offense drunk drivers. Since then, many community service programs have come into existence. One evaluation of these programs (Stenzel et al. 1987) was conducted in Baton Rouge, Louisiana where, beginning in 1983, virtually all DWI offenders were sentenced to community service. This program was accompanied by a public information campaign that appeared to be successful in increasing public awareness of the program. However, both self-reports and crash data failed to provide any statistically significant evidence of reduced recidivism for offenders who received this sanction in 1984, compared with offenders in 1982 who did not.

With regard to general deterrence, analyses of several surrogate measures produced mixed results, but single vehicle, fatal and injury crashes were somewhat lower following implementation of the program. It appeared that the percentage of drivers involved in fatal and serious injury crashes who had been drinking was reduced.

Clearly, more attention should be paid to some of these alternatives to jail, particularly those that combine restrictions of freedom with treatment for alcohol-related problems. Even where treatment is not part of the program, the general deterrent impact of house arrest and special confinement facilities for drunk drivers should be investigated more thoroughly.

License Suspensions and Revocations

License actions would seem to be an integral and essential part of removing drunk drivers from the roadway. However, such actions have been applied with extreme variation from one jurisdiction to another, even within the United States. Recently, increasing emphasis has been placed on license actions as drunk driving sanctions, both in foreign countries and in the United States.

In examining the effects of license actions, we came upon a number of important comparisons, including: discretionary versus mandatory actions; fully imposed versus suspended, stayed, or conditional actions; license withdrawal versus education or treatment; immediately imposed versus delayed actions; short versus long sentences; and criminal versus administrative processes. While adequate research on all of these issues does not exist, most have received some attention, primarily with regard to reductions in recidivism.

Individual Reform: Do License Actions Result in Reduced Recidivism?

As with jail sentences, deterrent, rehabilitation, and incapacitation effects are somewhat confounded in evaluating license suspensions. In this review, we continue to use the term "individual reform" to refer to reductions in the recidivism rates of offenders who receive these sanctions, regardless of which component is responsible for the reductions.

Evidence of individual reform as a consequence of license actions comes primarily from studies conducted in the United States. In most cases, these evaluations involved judicially imposed license sanctions. The most recent and complete review of such studies was conducted by Peck, Sadler, and Perrine (1985) who concluded that

there is no question that license suspensions have a significant effect in reducing the accident and drunk driving frequency of convicted DUI offenders . . . the overall consistency of the results from different investigators, using different quasi-experimental designs, precludes any other conclusion.

An important issue frequently encountered in these studies is that many offenders continue to drive during periods of suspension or revocation. The proportion of suspended drivers who continue to drive has been estimated by various studies to range from 25 to 75 percent (e.g., Hagen 1977; Hagen et al. 1980; Salzberg et al. 1981; Peck et al. 1985; Ross and Gonzales 1988). This high rate of subsequent driving is related to the fact that the perceived risk of being identified and prosecuted for driving while suspended is extremely low. In spite of the large number of suspended or revoked drivers who continue to drive, their crash and violation records during revocation or suspension are significantly better than those of nonsuspended drivers. This suggests that they drive fewer miles and more cautiously. Moreover, the low rates of crashes and violations are maintained after the license actions expire.

The study of *discretionary versus mandatory* license withdrawal actions provides an evaluation of the importance of certainty in the administration of such sanctions. Hagen (1977) reviewed studies conducted in Oregon (Kaestner and Speight 1974) and in Washington (Paulsruide and Klingberg 1975). These studies were not limited to alcohol-related offenders. They included persons who had a sufficient number of violations that driver improvement actions were invoked. Based on these studies, Hagen concluded that the traffic safety effectiveness of the discretionary use of license suspension was "less than startling." He contrasted these findings with those of a California study (Epperson et al. 1975) where the effectiveness of imposing mandatory license suspensions for multiple driving under the influence (DUI) offenders was "strongly evidenced."

Hagen then examined 6 years of postconviction driving records for multiple DUI offenders who received mandatory license withdrawals and compared them with the records of a matched group of offenders not receiving the mandated action because of dismissals of prior convictions. He found that a significantly smaller proportion of the license-action group was involved in a subsequent DUI arrest or crash. This effect lasted for approximately 4 years and was greater for older than for younger offenders.

Blomberg, Preusser, and Ulmer (1987) provided convincing evidence of the importance of certainty of license actions in reducing recidivism. They evaluated a 1982 Wisconsin law which mandated that all persons convicted of operating while intoxicated (OWI) would receive 3- to 6-month license suspensions. If a person was convicted of OWI and did not have such a penalty imposed by the court, the law required that the Bureau of Driver Licensing impose such a penalty. Virtually 100 percent of first-time OWI offenders in 1983 had their licenses suspended, compared with 45 percent in the year prior to the law. These researchers found that the new law group had a 1-year, OWI recidivism rate of 5.4 percent compared with a rate of 7.8 percent for the old law group, a reduction of 30 percent. A control group of moving violation offenders also showed reduced recidivism after the law was passed, but it was a smaller reduction. After controlling for the magnitude of this reduction, the differences in recidivism between the OWI groups were still significant.

In summary, the research suggests that mandatory license actions are more effective than discretionary sanctions in reducing recidivism. Certainty of the license action is likely to be a major factor in producing this effect.

Several studies have evaluated *license withdrawals compared with education and treatment sanctions*. When people are given education or treatment sanctions, license withdrawal actions are often stayed or suspended pending completion of the program. Thus, these studies also provide an evaluation of fully imposed sanctions compared with stayed or suspended license actions.

A series of California studies provided the most comprehensive information regarding license actions compared with education and treatment alternatives. Hagen (1977) and Hagen, Williams, McConnell, and Fleming (1978) evaluated the effectiveness of California alcohol treatment programs as an alternative to license actions. They found

that drivers with mandated loss of license had significantly fewer subsequent crashes and violations than those who attended rehabilitation programs in lieu of license actions.

A followup study by Sadler and Perrine (1984) compared 4-year subsequent driving records of these offenders. They found that offenders who received mandated license suspensions had significantly fewer subsequent arrests and violations than offenders who did not receive such sanctions. Offenders who received education or treatment alternatives may have had fewer subsequent alcohol-related violations. Overall, they concluded that license suspensions were more effective than any known form of alcohol education or rehabilitation.

Tashima and Peck (1986) found similar results for both first and multiple offenders. For second-time offenders, license suspension reduced the crash risk to nearly that of the average driver. The treatment group with a restricted license had a mean crash rate that was 91 percent higher than that of the suspended group.

Similar results have been found in other States. In North Carolina, a study by Popkin, Li, Lacey, Stewart, and Waller (1983) found that first-time DUI offenders who attended an alcohol/drug education program in lieu of receiving license suspensions had significantly higher subsequent DUI conviction and crash rates than those whose licenses were suspended.

In the State of Washington, Salzberg, Hauser, and Klingberg (1981) compared 5-year driving records of habitual offenders whose licenses were revoked, offenders whose revocations were stayed as a result of participation in an alcohol treatment program, and a control group whose cases were dismissed. Although the groups showed no differences in subsequent DWI arrests, adjusted data indicated that offenders receiving license revocations had approximately half as many subsequent moving violations and crashes as either offenders whose sentences were stayed or offenders whose cases were dismissed. Neither drivers whose license revocations were stayed nor drivers who avoided sanctions via dismissal of their charges appeared to have modified their driving behavior.

Following more than a decade of evaluations of the effectiveness of various programs related to the Alcohol Safety Action Projects implemented by the National Highway Traffic Safety Administration, Nichols et al. (1978*a, b*) and Nichols, Ellingstad, and Reis (1980) concluded that the majority of education and treatment programs showed little impact on reducing subsequent alcohol-related arrests or crashes, whereas license actions had been generally effective. Thus, they recommended that education and treatment programs should not be used in lieu of license actions, but should be continued as adjuncts to licensing actions. Mann, Leigh, Vingilis, and DeGenova (1983) reiterated the concerns of Nichols et al. (1978*a, b*, 1980) regarding the diversion of drunk drivers to rehabilitation programs in lieu of license actions.

Our review found that persons with stayed or suspended license actions had more subsequent violations and crashes than persons whose licenses were actually withdrawn, and that education or treatment programs did not counteract this negative effect. If education and treatment programs are to be considered (and they should be), their use should be in addition to license withdrawal.

Relative to the issue of *length of license withdrawal*, a study in New South Wales, Australia (Homel 1981) found that license withdrawal longer than 2 months was not associated with lower DUI reconversion rates. However, among drivers who were not rearrested for DUI (i.e., good risk drivers), longer periods of disqualification were associated with fewer non-alcohol-related violations. These reduced violations continued for up to 18 months after the license was restored. Homel suggested that 12- to 18-month disqualification periods were optimal.

In California, Sadler and Perrine (1984) provided further evidence that longer sentences reduce recidivism to a greater extent than shorter sentences. They found that

offenders who received 3-year license revocations had fewer subsequent total crashes and convictions than those who received 1-year suspensions. This was particularly true for younger offenders.

Looking only at very brief sentences in the State of Washington, Salzberg and Paulsrude (1983b) found that first-time offenders who received 30-day license suspensions (in addition to other penalties mandated by law) had fewer subsequent moving violations (though more alcohol-related violations) than first offenders who received the other penalties but who avoided the suspension. No impact was apparent on crash involvement. Their results suggested that short-term suspensions may be ineffective in reducing DWI recidivism.

The findings of Stewart, Gruenewald, and Roth (1988) were consistent with those of Salzberg and Paulsrude. These researchers investigated the recidivism rates of offenders receiving 30-day administrative license suspensions in Louisiana and Mississippi. While the brief administrative license sanctions appeared to have made drivers more cautious, they did not decrease DUI recidivism rates.

Our review found no studies that specifically evaluated the effect of *immediate versus delayed license actions*. Generally, license actions imposed by the courts take place 4 to 6 months after an arrest for DWI whereas administrative sanctions occur within 1 to 2 months following arrest. Evaluation of the effectiveness of license actions resulting from judicially imposed license actions compared to administratively imposed actions would be helpful in guiding States currently pursuing administrative licensing laws.

In summary, license actions of reasonable duration have been found to be effective in reducing crash and violation recidivism rates among offenders who receive them. Within reason, longer sanctions appear to be more effective than shorter sentences. The ability of license actions to reduce recidivism has been demonstrated for first offenders in California, North Carolina, and Wisconsin and for multiple offenders in Washington and California.

Generally, license actions are superior to remedial education or treatment. Some characteristics of license actions that appear to increase their effectiveness in reducing recidivism include making them mandatory, increasing their certainty of application, not offering remedial programs in lieu of license actions, and providing for suspensions of reasonable duration, such as 3 months or more. It is also believed, but not yet demonstrated, that minimizing the time from arrest to license withdrawal adds to its effectiveness.

General Deterrence: Do License Actions Reduce Drunk Driving and Alcohol-Related Crashes Among Drivers Who Are Not Caught?

As with jail sentences, it is most important to determine whether the general public is deterred from drinking and driving by license sanctions. Here, the studies by Votey and Shapiro (1983, 1985) are again relevant. Application of their econometric models to Sweden's fatality and injury data indicated that, among all sanctions, including jail, license actions were most highly associated with reductions in fatal crashes.

Few studies have measured the general deterrent impact of judicially imposed license actions in the United States. This is perhaps due to the irregularity with which such sanctions are applied. Recently, however, there has been more opportunity to observe the impact of significant increases in the certainty of license withdrawal actions because a number of States have begun imposing administrative sanctions. These sanctions have generally been brief-to-moderate in duration (i.e., 30-90 days), compared with the maximum duration allowable in criminal law (i.e., 1 year or more).

As of 1988, 23 States had administrative licensing laws, most implemented since 1982. The most frequently reported evidence regarding the general deterrent effect of these

laws has not come from formal evaluation studies. Rather, such evidence has come from observations and reports of significant increases in the number of license actions imposed, followed by significant (10-15 percent) reductions in night-time or alcohol-related fatal crashes. Such trends have been observed in several States that have passed administrative license laws (Illinois 1986; Minnesota 1987; Nevada 1986; New Mexico 1988).

Some of these laws have not been adequately evaluated, because they were enacted as components of comprehensive legislative packages. In Minnesota, Cleary and Rodgers (1986) determined the overall impact of a legislative package implemented in 1982 and found significant reductions in several fatal crash measures. Improvements in a previously implemented administrative licensing law constituted a major component of the legislation evaluated.

Similarly, in North Carolina, Lacey (1987, 1988; Lacey et al. 1984) evaluated the impact of a legislative package that included administrative license suspension as a primary component and found significant reductions in several alcohol-related crash measures, particularly for young drivers.

In Wisconsin, Blomberg et al. (1987) provided more specific evidence for the general deterrent effect of a combination of judicially and administratively imposed license sanctions for first-offense drinking drivers. The 1982 law they evaluated provided that any driver convicted of OWI who did not receive a license suspension or revocation by the court would have his license suspended administratively. Time-series analyses found that implementation of the law was associated with a 25-percent decrease in single-vehicle nighttime crashes, which are likely to be alcohol-related.

One of the evaluations most specific to the general deterrent effects of administrative licensing actions was conducted by Ross (1987). He evaluated the effectiveness of a New Mexico administrative licensing law using telephone surveys and time-series analyses of alcohol-related crash fatalities. Following implementation of the law, telephone surveys indicated that the perception of risk of apprehension and conviction rose slightly, though insignificantly; the perception of risk of license withdrawal, if convicted, rose considerably and significantly, and there was a temporary reduction in the proportion of persons who admitted to drinking and driving. More importantly, an interrupted time-series analysis of a 6-year, monthly series of fatality data indicated a reduction in the alcohol-related proportion of fatalities from 66 percent prior to the law to 56 percent following the law, a 15-percent reduction. Because of the absence of effects in some related data series, Ross urged caution in interpreting the results. Still, the New Mexico experience supports the wisdom of wider adoption of administrative license withdrawal for drunk driving.

In New Mexico as in Minnesota, surveys were conducted to measure changes in perceived risk of apprehension and sanctioning (Rodgers and Cleary 1983). One of the findings of these surveys was that respondents felt license suspensions would discourage drinking and driving more than any other sanction.

More recently, the Insurance Institute for Highway Safety (Zador et al. 1988) evaluated the effectiveness of three different types of laws: illegal per se, administrative per se, and mandatory jail (or community service) laws. This study found that all three types of laws affected fatalities, but that the administrative licensing laws had the greatest impact. This is consistent with the findings in Sweden by Votey and Shapiro (1983, 1985). Zador et al. estimated that administrative licensing laws reduced driver involvement in late-night fatal crashes by approximately 9 percent. This study provided support for a general deterrent effect of administrative license laws in several States.

In summary, while most of the evidence for reductions in recidivism comes from studies of criminally imposed license actions, evidence for a general deterrent effect of licensing actions comes primarily from studies where such actions have been administra-

tively imposed. Administrative license laws have generally been followed by significant increases in the number of offenders receiving license actions and by small but significant reductions in alcohol-related fatal crashes (Minnesota 1987; Lacey 1987, 1988; Nevada 1986; Ross 1987; Blomberg et al. 1987; etc.).

Throughout our review, we found evidence that, compared with other sanctions, license actions have the greatest individual and general deterrent potential (e.g., Homel 1981; Votey and Shapiro 1985; Tashima and Peck 1986; Zador et al. 1988). Regardless of the type of sanction, certainty of action appears to be an important component for deterrence, particularly general deterrence (e.g., Falkowski 1984; Epperson et al. 1975; Jones et al. 1987; Ross 1987; Blomberg et al. 1988; Zador et al. 1988).

With regard to administrative license actions, swiftness of action may also be an important component since administrative license withdrawals are usually imposed in a fraction of the time required for criminal sanctions. However, we found no studies that specifically evaluated this matter.

Fines

Fines have not been well evaluated for their impact on recidivism or their general deterrent effect despite the fact that such actions are a common element in most sanction combinations. The substantial fines imposed by the Scandinavians were associated with reductions in fatal crashes by Votey and Shapiro (1983, 1985). In Australia, Homel (1979, 1981) found that fines and "good behavior bonds," forfeited upon a repeat offense, were effective in reducing recidivism among DWI offenders. Homel (1981) reported that neither long nor short periods of imprisonment were any more effective in reducing recidivism than were fines or good behavior bonds. He also found that higher fines (\$300 or more) were more effective than lower fines in reducing recidivism.

In Sweden, violators receive "day fines." One day fine is one-tenth of 1 percent of the offender's annual income. The amount of the fine assessed is also associated with the seriousness of the offense (e.g., the offender's alcohol level). At the upper levels of severity, the fine can be as high as 80 day fines, which is more than 1 month's income (Winsten 1987). It would be useful to know if fines based on income levels, such as those used in Scandinavia, would produce greater general deterrent effects than the fines commonly used in the United States.

While we do not generally include costs such as insurance premiums as fines, it is worth noting that in New Jersey, heavy fines combined with substantial insurance assessments and license reinstatement fees have been credited by State safety officials with producing a significant reduction in alcohol-related fatal crashes. To date, however, no research evidence supports that claim.

In addition to their potential for reducing recidivism and alcohol-related crashes, fines serve another important function in some jurisdictions. They provide a source of funds for maintaining DWI countermeasure efforts. The State of New York has one of the most comprehensive program-financing systems in the United States. This system is based on the use of mandatory minimum fines, which are deposited in a specially designated DWI program account and redistributed to the counties in response to their program plans. The redistributed funds help pay for various components of the DWI control system such as enforcement, prosecution and adjudication, education, and public information. New York has credited this self-financing system, based on mandatory minimum fines, with significant reductions in alcohol-related fatal crashes since 1981 (McCartt and Dowling 1985).

Whether the observed reductions in New York can properly be attributed to the self-financing system is debatable. Nevertheless, this type of system is important from several perspectives. First, fines have been shown to have both specific and general

deterrent effects. Second, fines provide a mechanism for funding DWI countermeasure programs. Third, the process of redistributing funds from fines provides a mechanism for controlling programs and for encouraging activities that have the greatest potential for reducing alcohol-related crashes.

Conclusions and Recommendations

Based on our review, we conclude that while all sanctions have some potential for reducing drunk driving and alcohol-related crashes, some have more potential than others. While it is desirable and beneficial to modify the behavior of the small proportion of drinking drivers who are caught, the most important function a DWI sanction can have is to effectively deter the many drinking drivers who will never be apprehended. We feel that swift and sure license actions provide the greatest potential on both counts. While the limited number of studies conducted in the United States suggests that brief jail sentences for first offenders can also have a general deterrent effect, such actions are more costly to implement than license actions.

Fines can also be effective deterrents, particularly the heavier fines used in Scandinavia. This potential, combined with the fact that fines can provide needed income for DWI countermeasure efforts, suggests that more emphasis should be placed on the use of fines. Some consideration should also be given to fines based on income levels.

Overall, we would propose a model sanctioning system that would provide income to fund the program, maximum general deterrence for drinking drivers who have not been apprehended, and significantly increased emphasis on keeping multiple offenders off the roadways, at least until there is evidence that their drinking problems have been effectively addressed.

For first offenders, our model system would provide for mandatory minimum fines or fines based on income and mandatory minimum hard license suspensions of no less than 90 days, followed by a probationary or restricted license period. Following the hard suspension period, incentives would be provided to engage in alcohol education, assessment, and referral programs.

To make license actions more effective, greater emphasis would be placed on keeping suspended and revoked drivers from driving during their license withdrawal period. More extensive use of license plate confiscation for persons found driving while suspended would make such violations more visible and thus more enforceable. Repeat offenders would receive mandatory minimum hard license suspensions of 1 year. These actions failing, emphasis would be shifted to vehicle confiscation and confinement.

Incarceration would be used primarily for the most extreme offenders. It would involve special facilities and would include in-house efforts to assess and refer offenders to residential treatment programs. Driving privileges would not be restored to such offenders without medical evidence that their drinking problems had been effectively addressed.

Significant public information efforts would be directed toward keeping the public aware of sanctioning efforts and of the certainty of their application.

While much research on sanctions has already been conducted, several issues deserve additional research attention. These include the deterrent effect of swiftness in applying sanctions; hard suspensions compared with soft suspensions; mandatory minimum fines and fines based on the income level of the offender; alternatives to jail such as special facilities, house arrest, or community service; adding assessment and treatment to incarceration for multiple offenders; administrative licensing laws; and the effect of

license plate and vehicle confiscation in reducing the number of offenders who drive while their licenses are suspended or revoked.

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